

“ the clock, whenever he should call to him ;
 “ in which respect, he is of opinion, he made
 “ no mistake, though, possibly, he might make
 “ one with regard to the minute, by setting down
 “ *one too many* at the egress; which he now
 “ thinks there is some cause to believe he did.”

J. B.

XXXVIII. *Observations on the same Transit ;
 and on an Eclipse of the Moon, May 8,
 1761 ; and of the Sun, on the 3d of June
 1761 : In a Letter to the Rev. Thomas
 Birch, D. D. Secretary to the Royal So-
 ciety, from Mr. Peter Wargentin, Secretary
 to the Royal Academy of Sciences in Sweden,
 and F. R. S.*

Read Nov. 12,
 1761.

Litteræ hisce inclusæ, ad te et claris-
 simum Dollondium scriptæ, quas
 amicus meus, Dominus Klingenshierna (principis
 Suec. hæreditarii præceptor) transmittendas mihi tra-
 didit, occasionem mihi suppeditant, paucis te invi-
 sendi, tibi que communicandi observationes nonnullas
 astronomicas, nuper à me habitas, in observatorio
 Stockholmiensi, cujus elevatio poli est $59^{\circ} 20' 31''$,
 differentia autem meridian. ab observatorio Gren-
 viciensi $1^h 12' 1''$.

Si illas dignas judicaveris, quæ illustrissimæ Socie-
 tati Regiæ offerantur, erit id mihi gratissimum. Quid-
 quid

quid sit, me tua in scientias merita magni facere profiteor, et sincero cum affectu sum,

Reverendi nominis tui

Cultor studiosissimus,

Stockholmæ,
die 9 Junii 1761.

Petr. Wargentini,
Acad. R. Scient. Suec. Secret.

Eclipseos Lunæ totalis, die 18 Maii hujus anni, observatæ, quædam momenta.

	h	'	"	
P enumbradenſa in margine Lunæ } percipitur - - - - - }	9	31	30	veſp.
Initium veræ eclipseos circiter æſtimatum - - - - - }	9	32	20	
Grimaldus totus immergit - - -	9	35	50	
Schickardus totus abſconditur - -	9	38	48	
Galilæus occultatus in umbra diſparet	9	39	47	
Gaffendus deliteſcit - - - - -	9	43	28	
Ariſtarchus umbram ingreditur -	9	48	10	
Tycho incipit immergere - - -	9	51	5	
———— totus abit - - - - -	9	52	18	
Copernicus incipit tenebris offundi	9	54	16	
———— totus fere abſconditus -	9	55	48	
Eratofthenes immergit - - - - -	10	4	0	
Umbra ad Platonem - - - - -	10	14	53	
Archimedes evaneſcit - - - - -	10	15	26	
Plato totus eſt in umbra - - - - -	10	16	50	
Plinius ſe ſubducit - - - - -	10	18	31	
Proclus hæret in margine umbræ -	10	29	38	
Vix apparet veſtigium Procli - -	10	30	28	
Mare Criſium incipit immergere -	10	31	30	
Idem totum tenebræ occuparunt -	10	35	24	
Immerſio Lunæ totalis in umbram	10	41		{ vel paulo ferius.

Margo tamen Lunæ, qui ultimus immerſerat, ſatis clarâ luce conſpicuus fuit per 5 vel 6 temporis minuta, et referebat nudis oculis ſpeciem ſtellæ ſecundi ordinis. Hora autem 10^h 52' ille ipſe margo, cum tota reliqua Luna, ita prorſus diſparuerat, ut nullum ejus veſtigium, vel nudis vel armatis oculis, ſenſibile reſtaret, cœlo licet ſereno, et ſtellis vicinis in tubo conſpiciis. Sub ipſa quoque immerſione, illa Lunæ portio, quæ in umbram inciderat, penitus evaneſcebat, aliter ſane quam fieri ſolet etiam in eclipsibus Lunæ centralibus; plerumque enim Luna, quamvis in medio umbræ, apparere ſolet lumine quodam ſubobſcuro, per atmophæram refracto.

Antequam autem Luna ſic diſpareſceret, animadverti ſtellam (Libræ) in vicinia marginis orientalis, quam Luna mox occultatura videbatur.

Eam omni ſtudio proſecutus vidi demum,	} 10 52 39
oculi ictu citius, exſtingui occultatam	
Ejuſdem ſtellæ emerſio contigit inter	} 11 43 28
11 ^h 43' 8" et - - - - -	

Emergebat à parte Lunæ prorſus inviſibili: ejusque ſub Luna ſemita borealior paulo erat diametro Lunæ horizontali.

Poſtquam Lunam amiſſam diu quæſiviſſem, reperi tandem tubo bipedali, hora 11^h 30', vix ſenſibili luce circa marginem orientalem ſuffuſam. Hora 11^h 33' ejus quoque veſtigium acutioribus ſe offerebat oculis, inſtar tenuiſſimæ nubeculæ. Pluſquam dimidius autem Lunæ diſcus occidentalis manſit prorſus inviſibilis, et erant limites inter viſibilem et inviſibilem partem valde tortuoſi; circa margines autem Lunæ erat lumen illud intenſius et magis extenſum, quam circa centrum. Cœpta vero emerſione, quidquid nondum emerſerat, plane viſum non feriebat.

Lunæ

	h	'	"
Lunæ margo juxta Grimaldum lucidior } exsplendescere cœpit - - - -	12	13	0
Initium emerfionis veræ circiter - - -	12	15	0
Grimaldus incipit emergere - - - -	12	18	37
———— totus luci restitutus - - -	12	19	32
Galilæus prominet - - - - -	12	20	37
Aristarchus apparet - - - - -	12	22	2
———— jam totus est illustris - - -	12	22	47
Copernici nucleus lucem adspicit - - -	12	37	46
Tychonis nucleus incipit eluctari tenebris	12	44	35
———— totus evasit - - - -	12	45	52
Plinius prorepat - - - - -	13	0	47
Promontorium acutum incipit prominere	13	6	50
Mare Nectaris totum emerfit - - - -	13	9	37
Snellius emergit - - - - -	13	12	31
Totum Mare Crisium luci restitutum -	13	17	26
Langrenus porrigit latus - - - - -	13	18	15
Finis vera eclipseos circiter - - - -	13	21	8
Non nisi penumbra in Luna est residua -	13	23	0

Observationes hæ habitæ sunt cum tubo 9 pedum. Dominus Strömer, astron. prof. Upsaliensis, sociam mihi in observanda hac eclipsi commodavit operam, usus tubo 5 pedum. Ille pleraque immerfionis momenta 20'' vel 30'' citius, emerfionis autem tantundem fere tardius notavit.

Eclipsis Solis, die 5 Junii.

Sol ortus est hac die quartâ fere diametri horizontali parte multatus, hora - - - - -	h	'	"
Finis tantum hujus eclipseos utcunque observari potuit; contigit ille	3	0	0 mane.
	3	12	32

Transitus Veneris per discum Solis, die 6 Junii.

Venus jam aliqua sui parte discum	^h ' "	
Solis occupaverat - - - -	3 21 37	A. M.
Propter vehementem marginum Solis undulationem, primum contactum exteriorem accu- ratiùs notare non potui.		
Contactus interior, vel immersio	3 39 23	
totalis, meo quidem judicio con- tigit - - - - -		
At D ^{us} Klingenstierna contendit,	3 39 29	
eum demum contigisse - -		
Initium emersionis, contactu inte- riore, certè mihi apparuit - -	9 30 8	
Idem contactus ex observatione Do- mini Klingenstierna - - -	9 30 11	
Finis emersionis vel contactus ulti- mus, ex judicio D ⁱ Klingenstierna	9 48 6, vel 8.	
Meo autem, neutiquam ante - -	9 48 9	

Ego hac occasione adhibui tubum 20 ped. Suec. cum oculari, focum ad 3 digit. distant. habente.

Dominus autem Klingenstierna usus est novo illo excellentissimo tubo Dollondiano 10 pedum, cum oculari medio, vel mediocriter objecta ampliante.

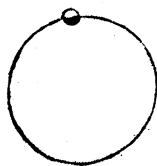
Reliquas meas observationes circa hunc transitum nondum in justum ordinem redegi.

Diameter Veneris in Sole erat quamproxime 5''.

Notatu dignum est, quod margo Veneris, qui jam emerferat, conspiciendum se præbuerit etiam extra Solem,

Solem, debili quadam luce, idque sub tota fere emersione, in hunc fere modum.

Sive illa in margine Veneris apparens, inflectioni radiorum Solis, sive refractioni in atmosphæra Veneris, sit tribuenda, disquirant alii.



XXXIX. An Account of the Observations made on the same Transit in Sweden: In a Letter from Mr. Peter Wargentin, Secretary to the Royal Academy of Sciences in Sweden, and F. R. S. to Mr. John Ellicot, F. R. S. Translated from the French.

S I R,

Stockholm, Aug. 7, 1761.

Read Nov 12, 1761. **I**N a letter, dated June 8th, I communicated to Dr. Birch, Secretary to the Royal Society, my observations upon the transit of Venus. Having since received some other good observations of this phænomenon, I thought the communicating them to you, would give you some pleasure.

At Torneo in Lapland, Messieurs Lagerborn and Hellant very happily observed both the entrance and exit of Venus, with telescopes of 32 and 20 feet focal lengths. The principal times observed were as follows:

Exterior